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SWAZILAND COMMERCIAL AGRICULTURAL PRODUCTION AND MARKETING

CONTRACT NO. 645-0229-C-00-9019

COMPUTER NEEDS ASSESSMENT

Prepared by

Paul K. Willis

Submitted to:

THE UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT
SWAZILAND MISSION

Submitted by:

CHEMONICS INTERNATIONAL CONSULTING DIVISION

February 16, 1990

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SECTION I

NEEDS ASSESSMENT FOR COMPUTER PROCUREMENT

A. Background

UNISWA cannot train students to develop the agricultural sector and privatize this and other sectors without the proper tools.

The Vice Chancellor's November 1988 Report listed the following UNISWA (Luyengo) objectives:

1. to produce high and middle level trained manpower needed for national development.

2. to provide a center for formal study of agriculture and associated areas of learning.

3. to further the education of professional and other persons working in agriculture and all levels of education.

4. to create, preserve, transmit and increase skills and knowledge in agriculture and related disciplines.

5. to work and forge links with national and international institutions to promote development in agriculture and related areas.

6. to provide a consultative and coordinating machinery for all involved in agro-based industries and education.

These objectives match the overall thrust of the CAPM project which is to increase agricultural commercialization, particularly within small farms. UNISWA's proposed curriculum emphasizes small agri-business management. Consequently the project and the institution are looking for and at the same clientele. Thus, the accompanying list of equipment will facilitate both sets of objectives to stimulate this clientele.

The basic needs for computer equipment, hardware and software, for the CAPM project are not terribly unique. However, technical specifications and the meshing of computer use in the CAPM project and UNISWA are. After reviewing the current capabilities and interviewing prospective users, it is evident that certain general problems exist and need to be addressed. These are: service, the skill level of the users, electrical service and housing of the computers.

B. General

1. Service

Service and maintenance are always an important element to consider in computer procurement. This becomes even more important when computers are being procured for inexperienced users or for student use. Obviously, procurement of quality equipment will help, but local warranty service is preferred. Several local vendors were interviewed and found to be very competent and capable of servicing most equipment available. Again, the preference is that service will be provided locally under warranty.

2. Skill level of users

Dr. Roger Kuhn will be the individual responsible for implementing the use of the computers at UNISWA. He is quite competent and will be able to handle the initial set up and normal operating procedures. However, additional faculty and staff need to be trained in basic fundamentals and more advanced uses of various software(i.e. spreadsheet and word processing). The CAPM team counterparts will need similar training as most will probably be using computers for the first time.

3. Electrical Service

Electrical power seems to be adequate both in Mbabane and Luyengo, the sites for the proposed computers. Although there are outages, surges and brown-outs, protection devices and/or uninterruptible power supplies (UPS) will prevent serious problems.

Electrical service in Swaziland is 220V/50Hz. This is a characteristic that must be dealt with carefully. Two options exist:

a. Purchase equipment designed for 220V/50Hz
b. Purchase equipment designed for 110V/60Hz and use transformers.

Option 1 is <u>strongly recommended</u>. The purchase of 110V equipment and use of transformers is likely to cause many more problems and will be more expensive in the long run.

4. Housing of computers

Computers purchased for the CAPM team counterparts will be housed in their respective units and should not require any special modification.

At UNISWA, there is currently a computer laboratory housing the six existing machines. However, this room is not large enough for the number of computers which are to be purchased. Another room has been made available which will be large enough but will

require some renovation. Specifically:

a. Resurface and level of existing floor
b. Minor ceiling and wall repair/patch
c. Interior paint
d. Removing large double doors at rear of room and sealing the aperture.
e. Removal of sinks around perimeter of room.
f. Entire electrical wiring of room suitable for 30 computers and additional outlets for overhead projectors, etc.
g. Furniture for computers which will be basic tables and chairs similar to existing furniture.
h. Heating and air conditioning system.

C. Recommended Hardware

Schedule S outlines the proposed hardware for procurement. These configurations have been chosen to facilitate current needs, provide for future expansion and have maximum flexibility for future software choices. This number of computers is needed because of a change in the curriculum which will introduce all students (80-100) to the computer in the second semester of their program.

This hardware provides adequate storage, memory and the ability to handle either of the two most common disk media sizes. In addition, all users will have at least shared printing capabilities. All equipment will be protected by surge suppressors or uninterruptible power supply (UPS). They are therefore suitable for teaching and research applications.

Table 1 shows the distribution of the proposed equipment among UNISWA and CAPM project.

D. Recommended Software

Schedule T outlines the proposed software for procurement. Multi-purpose application software is the bulk of the proposed procurement. This would be a more efficient use of funds rather than buying many different "canned" programs.

All machines will need MS-DOS. Likewise, all should be equipped with a standard word processor, Word Perfect 5.1 being the choice. Lotus 1-2-3 is recommended for use at UNISWA to maintain compatibility with existing applications and training. SuperCalc5 is recommended for the CAPM counterparts as this is the program of choice of the CAPM team. Compatibility between UNISWA and CAPM are not being sacrificed as a result of two different spreadsheets because files of the two can be interchanged. MSTAT is a statistical analysis program and is needed for teaching and research at UNISWA and can be used by the MOAC component of the CAPM team. Ventura Publisher is desk top publishing (DTP) software

and is needed by the CAPM team for publication and newsletter development. Each machine will receive Direct Access, a hard disk management/menu program to facilitate efficient use of hard disk space and ease of operation. Norton Utilities is recommended for both components as it provides many helpful utilities for disk operations. Finally, FastBack Plus is recommended for use in maintaining back-up or archival copies of software and data.

Table 2 shows the distribution of the proposed software among UNISWA and CAPM project.

E. Other Recommendations

1. Provide training soon after all equipment is in place. Training should include not only use, but care and maintenance.

2. Since Penn State has provided MACINTOSH equipment to the MOAC with DTP capabilities, there will be a need to acquire at a minimal investment IBM MAC file transfer capabilities.

3. If local warranty service is not available from the old winner, arrangements will have to be made for service with a local vendor immediately after receiving computers.

4. Some hardware components may be difficult to find with 220V power in the U.S. (ie. printers, UPS). If they are not available, purchase of those components should be made locally.

SECTION II
TABLES

TABLE 1

HARDWARE DISTRIBUTION

QUANTITY	DESCRIPTION	COMPONENT	FOR
21	Computer	UNISWA	Teaching Lab
6	Computer	UNISWA	6 departments
1	Computer	UNISWA	Library
1	Computer	UNISWA	A/V
8	80 Col. Printer	UNISWA	Teaching Lab
2	132 Col.Printer	UNISWA	Teaching Lab
6	80 Col. Printer	UNISWA	6 departments
1	132 Col. Printer	UNISWA	Library
1	Laser Printer	UNISWA	A/V
10	Printer Switch Box	UNISWA	Teaching Lab
18	Printer Cables	UNISWA	Teaching Lab
20	Switchbox Cables	UNISWA	Teaching Lab
6	UPS	UNISWA	6 departments
1	UPS	UNISWA	Library
1	UPS	UNISWA	A/V
2	Surge Suppressor	UNISWA	Teaching Lab
1	Computer	CAPM	MCIT Counterpart
2	Computer	CAPM	MOAC Mkt. Advisory
2	Computer	CAPM	MOAC Agribusiness
1	80 Col. Printer	CAPM	MCIT Counterpart
2	80 Col. Printer	CAPM	MOAC Agribusiness
1	80 Col. Printer	CAPM	MOAC Mkt. Advisory
1	132 Col. Printer	CAPM	MOAC Mkt. Advisory
1	UPS	CAPM	MCIT Counterpart
2	UPS	CAPM	MOAC Agribusiness
2	UPS	CAPM	MOAC Mkt. Advisory
5	Printer Cables	CAPM	1 each

TABLE 2

SOFTWARE DISTRIBUTION

DESCRIPTION	QUANTITY	COMPONENT	FOR
MS-DOS	34	UNISWA & CAPM	Each Machine
Word Perfect	34	UNISWA & CAPM	Each Machine
Direct Access	34	UNISWA & CAPM	Each Machine
Lotus	29	UNISWA	Each Machine
Fastback Plus	10	UNISWA	2-Lab,8 Individuals
Norton Util.	1	UNISWA	Teaching Lab
MSTAT License	1	UNISWA	Teaching Lab
MSTAT Manuals	10	UNISWA	Teaching Lab
SuperCalc 5	5	CAPM	Each Machine
Fastback Plus	5	CAPM	Each Machine
Norton Util.	1	CAPM	Office
Ventura	1	CAPM	MOAC Mkt. Advisory

SECTION III

SCHEDULES

Schedule S
Computer Hardware

Item No.	Quantity	Specifications
S1	26	IBM Compatible Computer Systems 80286 microprocessor 6/12 Mhz Clock Speed 1 1.2 MB/360K 5.25 inch Floppy Drive 1 1.44 MB/720K 3.5 inch Floppy Drive 40 MB Hard Disk Drive W/ Access time < 28 ms w/ auto park head 1 MB Ram (chip speed < 120 nanoseconds) Hercules or compatible Monographics adaptor 720 x 350 resolution in text mode w/ Printer port Amber Monochrome Monitor w/ Tilt & Swivel Base AT style 101 key keyboard 200 watt Power Supply 1 serial & Parallel Port 220V/50 Hz Local Warranty Service in Swaziland preferred
S2	8	Same as above W/ 80287 Math Co-processor
S3	8	Dot-Matrix Printers - Narrow Carriage (11 inch) - 9 pin print head - > 190 CPS - Parallel Interface - Epson Compatible - Friction and Tractor Feed - 220V/50 Hz - Local Warranty Service in Swaziland preferred
S4	2	Dot-Matrix Printers - Wide Carriage (14 inch) - 9 pin print head - > 240 CPS - Parallel Interface - Epson Compatible - Friction and Tractor Feed 220V/50 Hz Local warranty Service in Swaziland preferred

Schedule S (cont.)

S5	10	Dot-Matrix Printers - Narrow Carriage (11 inch) - 24 pin print head - > 190 CPS - Parallel Interface - Epson Compatible - Friction and Tractor Feed - 220V/50 Hz - Local Warranty Service in Swaziland preferred
S6	2	Dot-Matrix Printers Wide Carriage (14 inch) 24 pin print head > 240 CPS Parallel Interface Epson Compatible - Friction and Tractor Feed 220V/50 Hz Local Warranty Service in Swaziland preferred
S7	1	Laser Printer 220V/50Hz Hewlett Packard Series II or equivalent - 6 ppm Local Warranty Service in Swaziland preferred
S8	10	Printer Switch Boxes - A B Printer Switch - 2 Computers to 1 Printer
S9	23	Parallel Printer Cables (box to printer) - 10 ft. - Shielded W/ Thumb Screw Connectors
S10	20	Printer Cables (computer to box) - DB-25 Male Connector each end - 10 ft. - Shielded w/ Thumb Screw Connectors
S11	13	Uninterruptible Power Supplies - 220V/50 Hz - 300-400 Watt Output - <4 ms transfer time - Sine wave Power

Schedule S (cont.)

S12 Surge & Brown out Protection Device

- 3000 watt or greater load capability
- 220v/50Hz
- Protect against over voltage, overload, short circuit

Schedule T

Computer Software

Item No.	Quantity	Specifications
T1	34	MS-DOS 4.0 w/ GW-BASIC
T2	34	Word Perfect 5.1
T3	29	Lotus 1-2-3 version 2.2
T4	5	SuperCalc 5
T5	34	Direct Access Menu Software
T6	15	Fastback Plus
T7	2	Norton Utilities
T8	1	MSTAT C License
T9	1	Ventura Publisher
T10	10	MSTAT Manuals